U.S. Department of Transportation

Intelligent Transportation Systems Standards Fact Sheet

August 2002

NTCIP 1204 National Transportation Communications for ITS Protocol (NTCIP) – Object Definitions for Environmental Sensor Stations

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Overview

The National Transportation Communications for Intelligent Transportation System (ITS) Protocol (NTCIP) is a family of standards that provides both the rules of communicating (called protocols) and the vocabulary (called objects) necessary to allow electronic roadside equipment from different manufacturers to operate with each other as a system. The NTCIP is the first set of standards for the transportation industry that allows transportation systems to be built using a "mix and match" approach with equipment from different manufacturers. Therefore, NTCIP standards reduce the need for reliance on specific equipment vendors and customized one-of-a-kind software. To assure both manufacturer and user community support, NTCIP is a joint product of the National Electronics Manufacturers Association (NEMA), the American Association of State Highway and Transportation Officials (AASHTO), and the Institute of Transportation Engineers (ITE).

The NTCIP family of standards is a joint project of the following standards development organizations:

American Association of State Highway and Transportation Officials (AASHTO)

Institute of Transportation Engineers (ITE)

National Electrical Manufacturers Association (NEMA)

(Contact information is shown at the end of this fact sheet)

To obtain a copy of this standard, please contact:
Global Engineering Documents
Web site: http://global.ihs.com

Publication Date: September 1998
Amendment 1 Date: December 1998

Human communications relies on a vocabulary of words, each defined with a fixed meaning and spelling, understood by the members of the conversation group. Computers have a similar vocabulary, called "objects" in the NTCIP standards. These objects define all possible commands, responses and information that may be exchanged between microprocessor-controlled electronic equipment, a central computer, and by extension, their human operators. NTCIP groups these objects by subject material (e.g., environmental sensor stations) and calls these groupings "object definitions." The "objects" defined in this standard are generic to many different types of devices. For example, the standard includes objects for time and manufacturer name.

What is this standard for?

This standard, **NTCIP 1204, NTCIP - Object Definitions for Environmental Sensor Stations**, provides the vocabulary—commands, responses and information—necessary for the management of environmental sensor stations, including road weather information systems (RWIS) and air quality monitoring systems.

The NTCIP Object Definitions for Environmental Sensor Stations defines those objects used to describe ambient conditions (including air pressure, wind, temperature, precipitation, sunlight, visibility, and air quality) and pavement conditions (including surface and subsurface temperature, moisture, treatment, etc.) The standard includes conformance group requirements and conformance statements to aid in the preparation of procurement specifications.

Who uses it?

This standard should be used by transportation or traffic engineers involved with the specification, testing, and operation of either RWIS or air quality monitoring systems. Hardware and software developers should design their products to be compliant with this standard, including support of any appropriate options.

How is it used?

This standard defines a vocabulary of "objects" used to assure that the transportation management center computer-based devices and roadside devices "speak" a common language. A message must be understood by the device it was intended for, and equally important, it must not be misunderstood or misinterpreted by another device on the same network. Object definitions unambiguously define the content, terminology, value, and format of commands, responses, and information affecting communications with roadside devices.

This standard must be used with one of the NTCIP communications profiles (NTCIP 1101, 2001, etc.) which provide the communications channel for information transfer between devices. It must be used with the NTCIP Global Object Definitions (NTCIP 1201), which provides the glossary of common object definitions used by multiple NTCIP devices.

Scope

Communications between a transportation management center's central computer and environmental sensor stations are accomplished by using the objects defined in **NTCIP 1204, NTCIP - Object Definitions for Environmental Sensor Stations**. These objects define the information, commands and responses that must be understood by the devices at both ends of the communications channel.

Related documents

To accommodate the broad scope of this standardization effort, the NTCIP standard has been divided into several individual standards. A detailed list of related documents is available on the **NTCIP 9001, NTCIP Guide** fact sheet.

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